

# PICULS: Photonic Integrated Circuits for Ultra-Low Size, Weight and Power

Completed Technology Project (2016 - 2019)



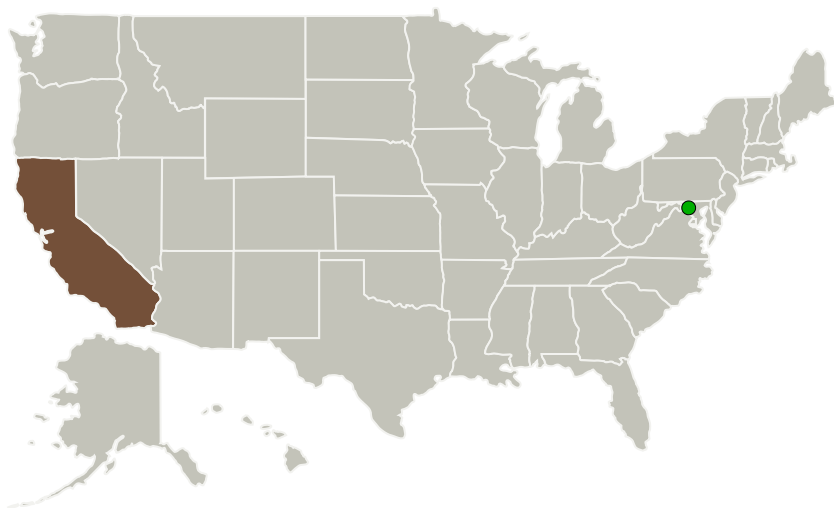
## Project Introduction

Integrated photonics can greatly reduce the size, weight and power of transceivers for space optical communications while improving performance and reliability. Photonic integrated circuits (PICs) combine photonic functions on a single chip. By employing CMOS-compatible PIC technology to realize high data rate space optical communication transceivers, we can leverage the manufacturing technology developed for the microelectronics industry and co-integrate electronics and photonics.

## Anticipated Benefits

Integrated photonics can greatly reduce the size, weight and power of transceivers for space optical communications while improving performance and reliability.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
University of California-Santa Barbara(UCSB)	Lead Organization	Academia Asian American Native American Pacific Islander (AANAPISI), Hispanic Serving Institutions (HSI)	Santa Barbara, California
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

## Primary U.S. Work Locations

California

## Project Website:

<https://www.nasa.gov/strg#.VQb6T0jJzyE>

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

University of California-Santa Barbara (UCSB)

### Responsible Program:

Space Technology Research Grants

## Project Management

### Program Director:

Claudia M Meyer

### Program Manager:

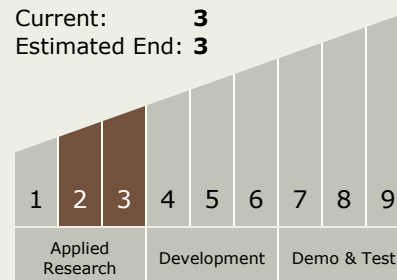
Hung D Nguyen

### Principal Investigator:

Jonathan Klamkin

## Technology Maturity (TRL)

Start: 2  
Current: 3  
Estimated End: 3



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## Technology Areas

### Primary:

- TX02 Flight Computing and Avionics
  - └ TX02.1 Avionics Component Technologies
    - └ TX02.1.2 Electronic Packaging and Implementations

## Target Destination

Earth